

CONTINUOUS IMPROVEMENT PROJECT DATABASE

DIVISION 5 PROJECTS

Project Name	Project Description	Division	Project Year	Contact Name	Contact Number	Project Category
Stormwater BMP Device	<p>Stormwater runoff from paved roadways is documented to convey pollutants into adjacent waterways. The NCDOT constructs several types of stormwater Best Management Practice (BMP) devices that control and treat stormwater pollution runoff from a roadway project prior to entering adjacent waters. There are over 300 stormwater BMP devices currently installed in Division 5. A BMP Location Survey Form is completed for each device located in the Division. Early efforts to catalog the devices in the Division included sorting all the BMP Location Survey Forms by county and making them available to the District office.</p> <p>Parties that propose land-disturbing activities within NCDOT right-of-way (ROW) are required to submit an encroachment application (with a construction plan depicting the proposed activity) to the District Office. Three stormwater BMP devices were inadvertently destroyed through encroachment activities from 2007-2008. Sorting the BMP Location Survey Forms by county and making them available to the District office did not provide adequate protection to the stormwater BMP devices.</p> <p>Division personnel created a GIS data layer identifying the location of each stormwater BMP device in the Division using the latitude and longitude listed on each BMP Location Survey Form. This allows personnel to open up the GIS data layer (using ArcGIS) which identifies the location of each stormwater BMP device located in the Division with an icon. The process has recently been further refined to allow each icon to be hyperlinked with the corresponding Stormwater BMP Location Form. This process has been termed Division 5 Stormwater BMP e-tracking database.</p> <p>The District office can now review each encroachment application to determine if any stormwater BMP devices will be impacted by the proposed construction within the NCDOT ROW. This should result in the elimination of inadvertent destruction of stormwater BMP devices in the Division.</p>	Div 5	2009	Chris Murray	(919)220-4633	Communications
Equipment Trailer Safety Step	<p>Problem: Trailers with factory installed steps are often welded to the trailer tongue, which is hard to use when the equipment is loaded.</p> <p>The steps are also more susceptible to damage from bumping the ground. Employee complaints and accident reports regarding factory steps were becoming frequent issues.Solution:</p> <p>Division 5 Equipment Shop designed a step which can be installed anywhere on any model trailer and only costs \$45 per step.</p> <p>It can save the Department up to \$213,195 in parts and labor if used on the 699 trailers currently in service.</p>	Division 5 Equipment Unit	2009	Adrian Rigsbee	(919)477-2128	Dollar Savings
Stormwater BMP tracking database	<p>Problem: The NPDES Stormwater Permit and NCDENR-DWQ riparian buffer rule require the perpetual maintenance and protection of stormwater BMP devices. There are over 230 stormwater BMPs located in Division 5. The District Office requires information concerning the location of these devices in the Division when reviewing encroachment applications.</p> <p>Solution: Division staff evaluated the information collected on the BMP Location Survey form and determined there was a need to maintain a Division-wide tracking inventory of each stormwater BMP device. The stormwater BMPs in the inventory are separated by TIP construction number and then sorted based on location (i.e. county) supported by each District office in the Division. The District office is then provided a Stormwater BMP Tracking Database that contains a copy of each completed BMP Location Survey Form. The District office will review the database when reviewing encroachment applications.</p>	Division 5 Construction	2008	Christopher A. Murray	(919) 220-4633	Communications
Guardrail Location Mapping	<p>Problem: While there are lists of secondary road numbers, there is no indication of exactly where the actual sections of guardrails were located. Many man-hours have been spent searching entire secondary routes in an effort to find the exact locations of guardrail sections in order to maintain uncontrolled vegetation by spraying operations and vegetation management.</p> <p>Solution: The sections of guardrail were documented on existing maps and then transferred onto new county maps. Those sections were highlighted according to route type.</p>	Operations Division 5	2007	Mark Conner	(919) 733-7141	Labor Hour Savings

The Gate-R	Removal and replacement of Dump Truck tailgates in order to facilitate installation of Sand / Salt In-Body Spreaders when a snow or ice storm threatened was a hazardous work task involving a crew of 5 people and the use of a loader. The task was fraught with unnecessary exposure to pinch points and precarious positioning of personnel. Ankles were strained from slips and falls that were occurring during the process of climbing the vehicle dump body in order to access the tailgate pins. Fingers were frequently pinched during the removal of the safety pins. Overhead lifting techniques were placing personnel in hazardous situations. A loader was needed to perform the operation which tied it up when it could be better utilized to load the trucks with anti-icing material (Sand / Salt). The tailgates were ferried across the yard for storage, which was taking up valuable time and space and causing congestion in the already busy yard. The team designed and built the Gate-R to improve efficiency and reduce risk.	Operations - Division 5	2005	D.J. Vienti	(336) 599-5255.	Cycle Time Reduction
Environmental Pre-Let Review	The NCDOT is required to obtain various environmental permits for projects. This process involves the submitting permit drawings that depict impacts to the environment associated with roadway construction to the USACE and NCDENR-DWQ. Environmental permits state that all construction must be completed in strict accordance to the permit drawings that were previously submitted to the regulatory agencies. A comprehensive pre-letting review of active TIP construction projects in Division 5 revealed significant discrepancies at permitted sites between the roadway plans and permit drawings. These discrepancies could result in violations of the environmental permits if not addressed. The Division Environmental Supervisor identified all discrepancies and initiated modifications to the permits. Construction of projects at many permitted sites could not be completed until permit modifications were issued by the regulatory agencies. This resulted in significant project delays, as construction at the permitted sites could not be brought to conclusion in a timely manner.	Operations- Div 5	2004	Jon Nance	(919)-560-6851	Communications
Advance Flashing Warning Light for Flagman Stop/Slow Paddle	Motorists on the North Carolina roadways are experiencing greater difficulties seeing our Roadway Maintenance flaggers while approaching NCDOT work zones. After several close call reports of motorists driving into the work zone buffers prior to stopping, it was deemed necessary to develop a safety device which would increase the visibility of the work zone flaggers and provide for earlier recognition of the stop/slow paddles within the work zones. Granville County Roadway Maintenance in Division 5 developed an advance warning flashing red light with a 12-volt mobile power source that can easily be attached to the current stop/slow paddles. Prior to approaching an NCDOT Work Zone, motorists are immediately alerted to the presence and location of the flagger. The flashing warning light is extremely effective in low visibility conditions or when the flagger is positioned in shaded areas of the roadway.	OPERATIONS DIVISION 5	2001	Mark Cooney	(919) 693-8164.	Safety Improvement